



**EFFECTIVE TERM:** Summer 2021

Course Identification

COURSE ID: VOC WL70C

**Student Learning Outcomes** 

COURSE TITLE (FULL): Certification for Welders

COURSE TITLE (SHORT): Certification for Welders

COURSE DIVISION: Continuing Education Division

COURSE DEPARTMENT: Short-Term Vocational

COURSE SUBJECT: Vocational

DISCIPLINE:

TAXONOMY OF PROGRAMS (TOP) CODE: 095650 \*Welding Technology

**CROSS LISTED COURSE:** 

**Course Attributes** 

CREDIT STATUS: N – Noncredit

TRANSFER STATUS: C Not Transferable

COURSE BASIC SKILLS STATUS: Not a Basic Skills Course

STUDENT ACCOUNTABILITY MODEL (SAM) CODE: C - Clearly Occupational

COURSE CLASSIFICATION STATUS: K Other Noncredit Enhanced Funding

FUNDING AGENCY CATEGORY: Not Applicable

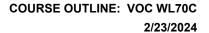
COURSE PROGRAM STATUS: 1 - Program Applicable

REPEATABILITY: Noncredit Repeatable

**GRADING METHOD:** Pass or No Pass

CREDIT BY EXAM: Not Allowed

WORK EXPERIENCE: Not part of co-op work experience education program





Course Workload Values					
Faculty Contact Hours	Lecture	Laboratory	Activity	Total	
Minimum Contact Hours	18	108		126	
Maximum Contact Hours					
Minimum Out of Class Hours	1			1	
Maximum Out of Class Hours	36			36	
Total Minimum Student Learning Hours	19	108		127	
Total Maximum Student Learning Hours	36			36	

Unit Value	Lecture	Laboratory	Activity	Total
Minimum Units				
Maximum Units				

To Be Arranged (TBA) Hours	Lecture	Laboratory	Activity	Total
Minimum To Be Arranged (TBA) Hours				
Maximum To Be Arranged (TBA) Hours				
Scheduled Hours				

METHODS OF INSTRUCTION
Lecture
Laboratory
Lecture and Laboratory
Open Entry/Exit
Independent Studies
Work Experience
Other To Be Arranged (TBA)
Class Size: 0

Requisites	
Advisory WELD 70B Intermediate Arc Welding	
Advisory VOC WL70B Intermediate Arc Welding	or

2/23/2024



#### **Course Outline with Information**

#### **CATALOG DESCRIPTION**

Building construction for the advanced arc welding student. Special emphasis will be placed on welding symbols and the American Welding Society's (AWS) D1.1 and D1.3.

#### SCHEDULE DESCRIPTION

Building construction for the advanced arc welding student. AWS D1.1 and D1.3 will be reviewed.

## **MEASURABLE OBJECTIVES**

- Read and interpret welding and building codes in the area of light gauge and heavy material of the construction industry.
- 2. Identify modern welding practices.
- 3. Evaluate finished welds for defects by visual and bend inspections.
- 4. Demonstrate proper and safe usage of welding equipment and practices by written and practical tests.
- 5. Compare and contrast SMAW and FCAW processes for appropriateness of code welding.

#### LECTURE TOPICAL OUTLINE

- Safety concepts in welding, heat radiation hazards, electrical fire hazards
- Certification versus qualification by on-the job experience only
- Review of electrodes identification Review of welding symbols
- Vertical single vee grove test plate Design of welded connections Overhead single vee groove test plate
- FCAW vertical vee groove test plate
- Inspection, stud welding, and strengthening and repairing existing structures Heavy material structural steel
- Light gauge certification test plates
- Simulated test for heavy material structural steel
- Design of welded connections and pre-qualification
- Fabrication, inspection, and stud welding
- Final exam

# LABORATORY TOPICAL OUTLINE

- Reviewing oxy-fuel cutting (proper usage of oxy-acetylene track cutter)
- Reviewing shielded metal arc welding (SMAW) E7018 all position (review of all position welding)
- Demonstrating SMAW vertical V groove test plate (fill passes)
- Demonstrating SMAW vertical V groove test plate (root passes)

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- Demonstrating SMAW vertical V groove test plate (cap passes)
- Covering flux cored arc welding (FCAW) NR-212 V Groove test plate (flat position test plate)
- Demonstrating FCAW NR-232 overhead V groove test plate (root passes)
- Demonstrating FCAW NR-232 overhead V groove test plate (fill passes)
- Demonstrating FCAW NR-232 overhead V groove test plate (cap passes)
- Demonstrating light gage E6010 & E6011 test plates for certification
- Demonstrating FCAW NR-232 vertical V groove test plate (root passes)
- Demonstrating FCAW NR-232 vertical V groove test plate (fill passes)
- Demonstrating FCAW NR-232 vertical V groove test plate (cap passes)
- Demonstrating light gage E7018 test plates for certification

## **METHODS OF EVALUATION**

#### Category 1. Substantial written assignments for this course include:

# If the course is degree applicable, substantial written assignments in this course are inappropriate because:

- This course primarily involves skills, demonstrations or problem-solving in building construction for the welding student

# Category 2. Computational or non-computational problems solving demonstrations

- Performance of correct pre-heat and inter-pass temperature control
- Proper amperage adjustment for both structural thickness material and light gage material

# **Category 3. Skills Demonstrations**

- Vertical single vee groove test plate
- Overhead single vee groove test plate

## **Category 4. Objective Examinations**

- Written practice exams in preparation for L.A. City Structural Welders' Certification written exam consisting of multiple choice questions supported by citations from the AWS D1.1 Structural Welding Code
- Written quizzes on weld symbols in preparation for L.A. City written certification exam

## SAMPLE ASSIGNMENTS





- 1. Practice in the vertical and overhead position in preparation for the certification area of structural steel manual, semi-automatic or light gauge.
- 2. Complete a given project simulating L.A. City test structural steel.
- 3. Conduct destructive testing measures on weld samples and differentiate between acceptable and unacceptable quality welding.
- 4. Perform cutting, grinding and polishing techniques for preparing weld samples.